



*United Kingdom of Great
Britain and Northern Ireland*

 **EDICT OF GOVERNMENT** 

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BS NA EN 1993-1-3 (2006) (English): UK National Annex to Eurocode 3. Design of steel structures. General rules. Supplementary rules for cold-formed members and sheeting

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NA to BS EN 1993-1-3:2006



BSI Standards Publication

UK National Annex to Eurocode 3: Design of steel structures

Part 1-3: General rules –
Supplementary rules for cold-formed
members and sheeting

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 6, an inside back cover and a back cover.

National Annex (informative) to BS EN 1993-1-3:2006: Eurocode 3: Design of steel structures – Part 1-3: General rules – Supplementary rules for cold-formed members and sheeting

Introduction

This National Annex has been prepared by BSI Subcommittee B/525/31, *Structural use of steel*. In the UK it is to be used in conjunction with BS EN 1993-1-3:2006.

NA.1 Scope

This National Annex gives:

- a) The UK decisions for the National Determined Parameters described in the following sub-clauses of BS EN 1993-1-3:2006.
 - 2 (3)
 - 2 (5)
 - 3.1 (3) Note 1 and Note 2
 - 3.2.4 (1)
 - 5.3 (4)
 - 8.3 (5)
 - 8.3 (13), Table 8.1
 - 8.3 (13), Table 8.2
 - 8.3 (13), Table 8.3
 - 8.3 (13), Table 8.4
 - 8.4 (5)
 - 8.5.1 (4)
 - 9 (2)
 - 10.1.1 (1)
 - 10.1.4.2 (1)
 - A.1(1), Note 2 and Note 3
 - A.6.4 (4)
 - E(1)
- b) The UK decisions on the status of BS EN 1993-1-3:2006 informative annexes.
- c) References to non-contradictory complementary information.

NA.2 Nationally Determined Parameters

NA.2.1 General

UK decisions for the Nationally Determined Parameters described in BS EN 1993-1-3:2006 are given in clauses NA.2.2 to NA.2.19.

NA.2.2 Partial safety factors, γ_M [BS EN 1993-1-3:2006, 2(3)]

Use recommended values.

NA.2.3 Partial safety factor, $\gamma_{M,ser}$ [BS EN 1993-1-3:2006, 2(5)]

Use recommended value.

NA.2.4 Nominal values of basic yield strength f_{yb} and ultimate tensile strength f_u [BS EN 1993-1-3:2006, 3.1(3) Note 1 and Note 2]

Note 1: Use recommended value.

Note 2: In addition to the steel materials and grades listed in Table 3.1b of BS EN 1993-1-3:2006, other steel materials may also be used, provided that their mechanical properties either meet the requirements of, or are specified in accordance with, the principles of the standards listed in Table 3.1b of BS EN 1993-1-3:2006.

NA.2.5 Core thickness [BS EN 1993-1-3:2006, 3.2.4(1)]

The allowable ranges of core thickness t_{cor} for design by calculation to BS EN 1993-1-3:2006 are as follows:

- For sheeting and members: $0.35 \text{ mm} \leq t_{cor} \leq 15 \text{ mm}$
- For connections: $0.35 \text{ mm} \leq t_{cor} \leq 4 \text{ mm}$

NA.2.6 Initial bow imperfections [BS EN 1993-1-3:2006, 5.3(4)]

Use the recommended values.

NA.2.7 Partial factor for mechanical fasteners, γ_{M2} [BS EN 1993-1-3:2006, 8.3(5)]

The partial safety factors, γ_{M2} , for mechanical fasteners should be taken as follows:

- Grade 4.6: $\gamma_{M2} = 1.5$
- Other grades: $\gamma_{M2} = 1.25$

NA.2.8 Design resistances of blind rivets [BS EN 1993-1-3:2006, 8.3(13)]

The shear resistance of blind rivets should be obtained by testing. Where characteristic resistance values are supplied by a manufacturer, they should be used in conjunction with the manufacturer's recommended γ_{M2} value.

Blind rivets should not be used in tension.

NA.2.9 Design resistances of self-tapping screws [BS EN 1993-1-3:2006, 8.3(13)]

The shear resistance and tension resistance of self-tapping screws should be obtained by testing. Where characteristic resistance values are supplied by a manufacturer, they should be used in conjunction with the manufacturer's recommended γ_{M2} value.

NA.2.10 Design resistances of cartridge fired pins [BS EN 1993-1-3:2006, 8.3(13)]

The shear resistance, pull-out resistance and tension resistance of cartridge fired pins should be obtained by testing. Where characteristic resistance values are supplied by a manufacturer, they should be used in conjunction with the manufacturer's recommended γ_{M2} value.

**NA.2.11 Design resistances of bolts
[BS EN 1993-1-3:2006, 8.3(13)]**

The pull-through resistance of bolts loaded in tension should be obtained by testing. Where characteristic resistance values are supplied by a manufacturer, they should be used in conjunction with the manufacturer's recommended γ_{M2} value.

**NA.2.12 Partial factor for spot welds, γ_{M2}
[BS EN 1993-1-3:2006, 8.4(5)]**

For spot welds loaded in shear, use $\gamma_{M2} = 1.25$.
Spot welds should not be used in tension.

**NA.2.13 Partial factor for lap welds, γ_{M2}
[BS EN 1993-1-3:2006, 8.5.1(4)]**

Use the recommended value.

NA.2.14 Design assisted by testing [BS EN 1993-1-3:2006, 9(2)]

Testing should be carried out in accordance with the principles given in A.2 to A.5 of BS EN 1993-1-3:2006. Evaluation of test results to give characteristic or design values may be undertaken following the methods given in A.6 of BS EN 1993-1-3:2006. Alternatively, the methods in Annex D of BS EN 1990:2002 may be used.

**NA.2.15 Beams restrained by sheeting
[BS EN 1993-1-3:2006, 10.1.1(1)]**

Use the tests described in Annex A of BS EN 1993-1-3:2006.

**NA.2.16 Buckling of free flange
[BS EN 1993-1-3:2006, 10.1.4.2(1)]**

The reduction factor for lateral-torsional buckling, χ_{LT} should be obtained from BS EN 1993-1-1, 6.3.2.2 using buckling curve b.

NA.2.17 Testing procedures [BS EN 1993-1-3:2006, A1(1)]

Note 2: Testing should be carried out in accordance with the principles given in A.2 to A.5 of BS EN 1993-1-3:2006. Evaluation of test results to give characteristic or design values may be undertaken following the methods given in A.6 of BS EN 1993-1-3:2006. Alternatively, the methods in Annex D of BS EN 1990:2002 may be used.

Note 3: Existing test results may be converted into equivalent Eurocode values provided that the original test procedures comply with the principles given in BS EN 1993-1-3:2006 and the test arrangements do not differ significantly from the recommendations of A.2 to A.5 of BS EN 1993-1-3:2006. Equivalent Eurocode characteristic or design values may either be obtained by re-analysing the original raw test data following the recommendations of A.6 of BS EN 1993-1-3:2006 or Annex D of BS EN 1990:2002, or by back analysis of the original characteristic or design values.

NA.2.18 Partial factor for test results, γ_M
[BS EN 1993-1-3:2006, A6.4(4)]

The values given in this National Annex for design by calculation may be used. Alternatively, values of γ_M resulting from the use of Annex D of BS EN 1990 may be used.

NA.2.19 Limitations on the use of "Simplified design for pulins"
[BS EN 1993-1-3:2006, E(1)]

The procedure given in Annex E of BS EN 1993-1-3:2006 should not be used.

Information on an alternative method is given in **NA.4**.

NA.3 Decisions on the status of informative annexes

NA.3.1 Annex B

BS EN 1993-1-3:2006 informative Annex B may be used in the UK.

NA.3.2 Annex C

BS EN 1993-1-3:2006 informative Annex C may be used in the UK.

NA.3.3 Annex D

BS EN 1993-1-3:2006 informative Annex D may be used in the UK.

NA.3.4 Annex E

BS EN 1993-1-3:2006 informative Annex E may not be used in the UK.

NA.4 References to non-contradictory complementary information

References cited in this National Annex to non-contradictory, complementary information can be found at www.steel-ncci.co.uk. Whilst this material is likely to be technically authoritative, not all of it has been reviewed by the UK national committee, and users should satisfy themselves of its fitness for their particular purpose. In particular, they should be aware that material indicated as not having been endorsed by the committee might contain elements that are in conflict with the Eurocode.

Bibliography

Standards publications

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 1990:2002, *UK National Annex for Eurocode 0 – Basis of structural design*

BS EN 1993-1-1:2005, *Eurocode 3 – Design of steel structures – Part 1-1: General rules and rules for buildings*

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